**Adding “words” or phrases to this?**

**Algebra 1B Name:**

**7.2 Notes Date:**

**Main Concept**

|  |  |  |
| --- | --- | --- |
| **Type** |  |  |
| **Rules** |  |  |
| **Tables** | |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | x = | 0 | 1 | 2 | 3 | 4 | 5 | 6 | | y = | 5 | 8 | 11 | 14 | 17 | 20 | 23 | | |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | x = | 0 | 1 | 2 | 3 | 4 | 5 | 6 | | y = | 5 | 15 | 45 | 135 | 405 | 1215 | 3645 | |
| **Graphs** |  |  |

**Algebra 1B Name:**

**7.2 Classwork Date:**

**1. Decide whether the word problem represents a linear or exponential function. Circle either linear or exponential. Then, write the function formula.**

**a.** “A library has 8000 books, and is adding 500 more books each year.”

Linear or exponential? *y* = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**b.** “A bank account starts with $10. Every month, the amount of money in the account is tripled.”

Linear or exponential? y = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**2.** **Decide whether the table represents a linear or exponential function. Circle either linear or exponential. Then, write the function formula.**

**a.**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *x* | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| *y* | 10 | 5 | 2.5 | 1.25 | .625 | .3125 | .15625 | .078125 |

Linear or exponential? *y* = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**b.**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *x* | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| *y* | 40 | 35 | 30 | 25 | 20 | 15 | 10 | 5 |

Linear or exponential? *y* = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**4. Without a calculator**, make a table for *f*(*x*) = . Express answers as fractions.

|  |  |
| --- | --- |
| *x* | *f*(*x*) = |
| 0 |  |
| 1 |  |
| 2 |  |
| 3 |  |
| 4 |  |
| 5 |  |

**Algebra 1B Name:**

**7.2 Homework Date:**

**1. Decide whether the word problem represents a linear or exponential function. Circle either linear or exponential. Then, write the function formula.**

**a.** “A gym’s customers must pay $50 for a membership, plus $3 for each time they use the gym.”

Linear or exponential? *y* = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**b.** “At the start of a carnival, you have 50 ride tickets. Each time you ride the roller coaster, you have to pay 6 tickets.”

Linear or exponential? *y* = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**c.** “There are 20,000 owls in the wild. Every decade, the number of owls is halved.”

Linear or exponential? y = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**2.** **Decide whether the table represents a linear or exponential function. Circle either linear or exponential. Then, write the function formula.**

**a.**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *x* | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| *y* | 2 | 5 | 8 | 11 | 14 | 17 | 20 | 23 |

Linear or exponential? *y* = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**b.**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *x* | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| *y* | 3 | 6 | 12 | 24 | 48 | 96 | 192 | 384 |

Linear or exponential? *y* = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**c.**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *x* | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| *y* | 12 | 8 | 4 | 0 | -4 | -8 | -12 | -16 |

Linear or exponential? *y* = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**d.**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *x* | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| *y* | .4 | .6 | .9 | 1.35 | 2.025 | 3.0375 | 4.55625 | 6.834375 |

Linear or exponential? *y* = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**3. Without a calculator**, make a table for *f*(*x*) =

.

|  |  |
| --- | --- |
| *x* | *f*(*x*) = |
| 0 |  |
| 1 |  |
| 2 |  |
| 3 |  |
| 4 |  |
| 5 |  |
| 6 |  |

**4. Without a calculator**, make a table for *f*(*x*) =. Express answers as fractions.

|  |  |
| --- | --- |
| *x* | *f*(*x*) = |
| 0 |  |
| 1 |  |
| 2 |  |
| 3 |  |
| 4 |  |
| 5 |  |
| 6 |  |

**5.** A science experiment involves periodically measuring the number of mold cells present on a piece of bread. At the start of the experiment, there are 50 mold cells. Each time a periodic observation is made, the number of mold cells triples. For example, at observation #1, there are 150 mold cells.

**a.** Fill in the missing outputs of this table.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| *x* = observation number | 0 | 1 | 2 | 3 | 4 | 5 |
| *y* = mold cell count | 50 | 150 |  |  |  |  |

**b.**

Write a function formula equation (*y* = ···) for the number of mold cells present, where *x* stands for the observation number.

**c.** Suppose that the mold begins to be visible as green coloration when the mold cell count exceeds 100,000. On which observation will this happen?

**6.** Julie gets a pre-paid cell phone. Initially she has pays $40.00 for the phone. Each minute of talking costs $0.15.

Let *x* stand for the amount of time in minutes that Julie has talked on the phone, and let *f(x)* stand for the remaining dollar value of the phone.

**a.** Is this best represented by a linear function or an exponential function? Explain how you know.

**b.** Find a function formula equation *y* = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**c.** How much has Julie spent after 100 minutes of talking?

**d.** Using your equation, after how many minutes of talking has Julie spent $100 on her phone? You may use a calculator.